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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
MEEKS, TIMOTHY HOWARD

ART UNIT	PAPER NUMBER
1762	5

DATE MAILED: 03/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/041,026	Applicant(s) SUBRAMONY ET AL.
	Examiner Timothy H. Meeks	Art Unit 1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *24,26 and 27* is/are withdrawn from consideration.

5)☒ Claim(s) *19,21 and 25* is/are allowed.

6)☒ Claim(s) *1-18,20,22 and 23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-27* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-23 and 25, drawn to a method, classified in class 427, subclass 255.37.

II. Claim 24, drawn to a film, classified in class 428, subclass 411.1+.

III. Claims 26 and 27, drawn to an apparatus, classified in class 118, subclass 715.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process could be used to make films of other thicknesses.

Inventions I and III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process could be performed using an apparatus without a computer readable medium.

Inventions II and III are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and

materially different apparatus (MPEP § 806.05(g)). In this case the product could be made by an apparatus that does not include a computer readable memory.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Michael Bernardicou on 27 February 2003 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-23 and 25. Affirmation of this election must be made by applicant in replying to this Office action. Claims 24, 26, and 27 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 4, 6-8, 11, 13, 16, 20, 22, and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 2, 4, 6, 8, 11, 13, 16, 20, 22, and 23, "a group" should be changed to "the group" as it is unclear whether the defined species must be selected from the mentioned group or if it can be selected from other groups.

In claim 7, it is unclear how reacting occurs before the deposition. Following the claim structure of analogous claims 3, 12, 17 and 21, it would appear that the word "reacting" in claim 7 should be the word "mixing".

In claim 23, "said nitrogen source gas" lacks proper antecedent basis. It appears that "nitrogen" should be "nitridation".

Claim Objections

Claims 19 and 25 are objected to because of the following informalities: In claim 19, line 8, "flows" should be "flow". In claim 25, line 8, "injection" should be "injecting". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-5, 7-10, 12-15, 17, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Jain et al. (6,465,044).

Jain et al. disclose a process comprising placing a substrate in a deposition chamber, decomposing a silicon source of OMTS and an oxidation source of ozone using the substrate heated to 300 to 600 °C in the chamber, and forming a silicon oxide film above the substrate using a chamber pressure during deposition of 200-600 Torr, the 200 Torr endpoint being in the claimed range, and a ratio of oxidizer to OMTS in the claimed range being used in table 2 (see col. 4, lines 30-40, col. 5, lines 40-50, col. 7, lines 58-63, table 2). As disclosed at col. 8, lines 60-63, the coated substrates were thermally annealed. Additionally, heating the substrates to 300-600 °C while exposing to the reactive gases constitutes a thermal annealing of the substrate using the same gases as the silicon source and the oxidation source. As shown in figures 1 and 2, the silicon and oxidation sources are mixed prior to the decomposition .

Claims 5-8 and 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Adams (4,217,375).

The claimed process is explicitly disclosed at Example 1.

Claims 5-7 and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshioka et al. (3,442,700).

The claimed process is disclosed at col. 3, lines 40-45 and col. 3, line 63 to col. 4, line 15. The 1,000 times flow ratio is in the claimed range. As shown in the figures, the silicon and oxidation sources are mixed prior to the decomposition.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka et al.

The teachings of Yoshioka are discussed above. Yoshioka is silent as to the pressure under which deposition is conducted and therefore fails to disclose the claimed pressures. However, it has been well established that "Where the principal difference between the claimed process and that taught by the reference is a temperature difference, it is incumbent upon applicant to establish criticality of that difference". See *Ex parte Khusid*, 174 USPQ 59 In the instant case, the only difference between the prior art and the claimed process is the process pressure which is clearly analogous to a temperature difference. If applicant can establish a showing of criticality in the claimed pressure, the rejection will be withdrawn.

Allowable Subject Matter

Claims 19, 21, and 25 are allowed.

Claims 20, 22, and 23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: The closest prior art reference to claims 19-23 is USP 5,976,991. This reference, alone or in combination, provides no teaching or suggestion to divert the silicon source gas flow as claimed along with the claimed pressure and flow ratio limitations, using a thermal process and purging with a cleaning gas. USP 6,258,170 is the closest prior art to claim 25. This reference provides no teaching or suggestion to provide silicon and oxidation source gases to the type of chamber as claimed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy H. Meeks whose telephone number is (703) 308-3816. The examiner can normally be reached on Mon, Tue, and Thu, 6:00-6:30, and Sun, 6-10 am.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Timothy H. Meeks
Primary Examiner
Art Unit 1762

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March 17, 2003